



SEQUENCE LISTING

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Obar, Robert
Wu, Ying-Jye

<120> Methods for the Detection of Cervical Cancer

<130> MTP-023DV2

<140> US 09/315,355

<141> 1999-05-17

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<151> 1997-12-11

<150> US 08/705,660

<151> 1996-08-30

<160> 46

<170> PatentIn version 3.1

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<212> PRT

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Pro Ala Ala Ser Leu Ala Val His Thr Asp Lys
1 5 10

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<211> 7

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Phe Ser Gly Gln Ile Glu Arg
1 5

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<400> 3

Arg Leu Ile Ala Glu Ala Lys Glu Lys
1 5

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Pro Ser Leu Val His Ser Arg Asp Met
1 5

<210> 5
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<400> 5

Val Trp Asp Ile Ser Thr Val Ser Ser Val Asn Glu Ala Phe Gly Arg
1 5 10 15

<210> 6
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<400> 6

Leu Val Leu Gly Ser Ala Arg Asn Ser Ser Ile Ser Gly Pro Phe Gly
1 5 10 15

Ser Arg

<210> 7
<211> 25
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<213> Homo sapiens

<400> 7

Ser Asp Lys Pro Ile Phe Thr Leu Asn Ala His Asn Asp Glu Ile Ser
1 5 10 15

Gly Leu Asp Leu Ser Ser Gln Ile Lys
20 25

<210> 8
<211> 21
<212> PRT
<213> Homo sapiens

<400> 8

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TECH CENTER 1600/2900

Val Gln Thr Leu Gln Phe His Pro Phe Glu Ala Gln Thr Leu Ile Ser
 1 5 10 15

Gly Ser Tyr Asp Lys
 20

<210> 9
 <211> 23
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 <213> Homo sapiens

<400> 9

Met Gly Val Leu Phe Cys Ser Ser Cys Cys Pro Asp Leu Pro Phe Ile
 1 5 10 15

Tyr Ala Phe Gly Gly Gln Lys
 20

<210> 10
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 <213> Homo sapiens

<400> 10

Met Asn Arg Ser Arg Gln Val Thr Cys Val Ala Trp Val Arg Cys Gly
 1 5 10 15

Val Ala Lys Glu Thr Pro Asp Lys Val Glu Leu Ser Lys Glu Glu Val
 20 25 30

Lys Arg Leu Ile Ala Glu Ala Lys Glu Lys Leu Gln Glu Glu Gly Gly
 35 40 45

Gly Ser Asp Glu Glu Glu Thr Gly Ser Pro Ser Glu Asp Gly Met Gln
 50 55 60

Ser Ala Arg Thr Gln Ala Arg Pro Arg Glu Pro Leu Glu Asp Gly Asp
 65 70 75 80

Pro Glu Asp Asp Arg Thr Leu Asp Asp Asp Glu Leu Ala Glu Tyr Asp
 85 90 95

Leu Asp Lys Tyr Asp Glu Glu Gly Asp Pro Asp Ala Glu Thr Leu Gly
 100 105 110

Glu Ser Leu Leu Gly Leu Thr Val Tyr Gly Ser Asn Asp Gln Asp Pro
115 120 125

Tyr Val Thr Leu Lys Asp Thr Glu Gln Tyr Glu Arg Glu Asp Phe Leu
130 135 140

Ile Lys Pro Ser Asp Asn Leu Ile Val Cys Gly Arg Ala Glu Gln Asp
145 150 155 160

Gln Cys Asn Leu Glu Val His Val Tyr Asn Gln Glu Glu Asp Ser Phe
165 170 175

Tyr Val His His Asp Ile Leu Leu Ser Ala Tyr Pro Leu Ser Val Glu
180 185 190

Trp Leu Asn Phe Asp Pro Ser Pro Asp Asp Ser Thr Gly Asn Tyr Ile
195 200 205

Ala Val Gly Asn Met Thr Pro Val Ile Glu Val Trp Asp Leu Asp Ile
210 215 220

Val Asp Ser Leu Glu Pro Val Phe Thr Leu Gly Ser Lys Leu Ser Lys
225 230 235 240

Lys Lys Lys Lys Lys Gly Lys Lys Ser Ser Ser Ala Glu Gly His Thr
245 250 255

Asp Ala Val Leu Asp Leu Ser Trp Asn Lys Leu Ile Arg Asn Val Leu
260 265 270

Ala Ser Ala Ser Ala Asp Asn Thr Val Ile Leu Trp Asp Met Ser Leu
275 280 285

Gly Lys Pro Ala Ala Ser Leu Ala Val His Thr Asp Lys Val Gln Thr
290 295 300

Leu Gln Phe His Pro Phe Glu Ala Gln Thr Leu Ile Ser Gly Ser Tyr
305 310 315 320

Asp Lys Ser Val Ala Leu Tyr Asp Cys Arg Ser Pro Asp Glu Ser His
325 330 335

Arg Met Trp Arg Phe Ser Gly Gln Ile Glu Arg Val Thr Trp Asn His
340 345 350

Phe Ser Pro Cys His Phe Leu Ala Ser Thr Asp Asp Gly Phe Val Tyr
355 360 365

Asn Leu Asp Ala Arg Ser Asp Lys Pro Ile Phe Thr Leu Asn Ala His
370 375 380

Asn Asp Glu Ile Ser Gly Leu Asp Leu Ser Ser Gln Ile Lys Gly Cys
385 390 395 400

Leu Val Thr Ala Ser Ala Asp Lys Tyr Val Lys Ile Trp Asp Ile Leu
405 410 415

Gly Asp Arg Pro Ser Leu Val His Ser Arg Asp Met Lys Met Gly Val
420 425 430

Leu Phe Cys Ser Ser Cys Cys Pro Asp Leu Pro Phe Ile Tyr Ala Phe
435 440 445

Gly Gly Gln Lys Glu Gly Leu Arg Val Trp Asp Ile Ser Thr Val Ser
450 455 460

Ser Val Asn Glu Ala Phe Gly Arg Arg Glu Arg Leu Val Leu Gly Ser
465 470 475 480

Ala Arg Asn Ser Ser Ile Ser Gly Pro Phe Gly Ser Arg Ser Ser Asp
485 490 495

Thr Pro Met Glu Ser
500

<210> 11
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Asp Tyr Ser Gln Tyr Tyr Arg
1 5

<210> 12

<211> 10
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<213> Homo sapiens

<400> 12

Asn His Glu Glu Glu Met Asn Ala Leu Arg
1 5 10

<210> 13
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<212> PRT
<213> Homo sapiens

<400> 13

Leu Leu Glu Gly Glu Asp Ala His Leu Thr Gln Tyr Lys
1 5 10

<210> 14
<211> 6
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Ile Leu Asn Glu Met Arg
1 5

<210> 15
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<213> Homo sapiens

<400> 15

Ser Glu Ile Ser Glu Leu Arg
1 5

<210> 16
<211> 9
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<400> 16

Asp Ala Glu Asp Trp Phe Phe Ser Lys
1 5

<210> 17
<211> 11
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<213> Homo sapiens

<400> 17

Leu Ser Val Glu Ala Asp Ile Asn Gly Leu Arg
1 5 10

<210> 18

<211> 432

<212> PRT

<213> Homo sapiens

<400> 18

Met Thr Thr Ser Ile Arg Gln Phe Thr Ser Ser Ser Ser Ile Lys Gly
1 5 10 15

Ser Ser Gly Leu Gly Gly Gly Ser Ser Arg Thr Ser Cys Arg Leu Ser
20 25 30

Gly Gly Leu Gly Ala Gly Ser Cys Arg Leu Gly Ser Ala Gly Gly Leu
35 40 45

Gly Ser Thr Leu Gly Gly Ser Ser Tyr Ser Ser Cys Tyr Ser Phe Gly
50 55 60

Ser Gly Gly Gly Tyr Gly Ser Ser Phe Gly Gly Val Asp Gly Leu Leu
65 70 75 80

Ala Gly Gly Glu Lys Ala Thr Met Gln Asn Leu Asn Asp Arg Leu Ala
85 90 95

Ser Tyr Leu Asp Lys Val Arg Ala Leu Glu Glu Ala Asn Thr Glu Leu
100 105 110

Glu Val Lys Ile Arg Asp Trp Tyr Gln Arg Gln Ala Pro Gly Pro Ala
115 120 125

Arg Asp Tyr Ser Gln Tyr Tyr Arg Thr Ile Glu Glu Leu Gln Asn Lys
130 135 140

Ile Leu Thr Ala Thr Val Asp Asn Ala Asn Ile Leu Leu Gln Ile Asp
145 150 155 160

Asn Ala Arg Leu Ala Ala Asp Asp Phe Arg Thr Lys Phe Glu Thr Glu
165 170 175

Gln Ala Leu Arg Leu Ser Val Glu Ala Asp Ile Asn Gly Leu Arg Arg
180 185 190

Val Leu Asp Glu Leu Thr Leu Ala Arg Ala Asp Leu Glu Met Gln Ile
195 200 205

Glu Asn Leu Lys Glu Glu Leu Ala Tyr Leu Lys Lys Asn His Glu Glu
210 215 220

Glu Met Asn Ala Leu Arg Gly Gln Val Gly Gly Glu Ile Asn Val Glu
225 230 235 240

Met Asp Ala Ala Pro Gly Val Asp Leu Ser Arg Ile Leu Asn Glu Met
245 250 255

Arg Asp Gln Tyr Glu Lys Met Ala Glu Lys Asn Arg Lys Asp Ala Glu
260 265 270

Asp Trp Phe Phe Ser Lys Thr Glu Glu Leu Asn Arg Glu Val Ala Thr
275 280 285

Asn Ser Glu Leu Val Gln Ser Gly Lys Ser Glu Ile Ser Glu Leu Arg
290 295 300

Arg Thr Met Gln Ala Leu Glu Ile Glu Leu Gln Ser Gln Leu Ser Met
305 310 315 320

Lys Ala Ser Leu Glu Gly Asn Leu Ala Glu Thr Glu Asn Arg Tyr Cys
325 330 335

Val Gln Leu Ser Gln Ile Gln Gly Leu Ile Gly Ser Val Glu Glu Gln
340 345 350

Leu Ala Gln Leu Arg Cys Glu Met Glu Gln Gln Asn Gln Glu Tyr Lys
355 360 365

Ile Leu Leu Asp Val Lys Thr Arg Leu Glu Gln Glu Ile Ala Thr Tyr
370 375 380

Arg Arg Leu Leu Glu Gly Glu Asp Ala His Leu Thr Gln Tyr Lys Lys
385 390 395 400

Glu Pro Val Thr Thr Arg Gln Val Arg Thr Ile Val Glu Glu Val Gln
405 410 415

Asp Gly Lys Val Ile Ser Ser Arg Glu Gln Val His Gln Thr Thr Arg
420 425 430

<210> 19
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<213> Homo sapiens

<400> 19

Phe Gly Gly Asn Pro Gly Gly Phe Gly Asn Gln Gly Gly Phe Gly Asn
1 5 10 15

Ser Arg

<210> 20
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<400> 20

Trp Cys Asp Cys Lys
1 5

<210> 21
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Thr Thr Glu Gln Asp Leu Lys
1 5

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<400> 22

Gly Phe Gly Phe Val Arg
1 5

<210> 23
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Leu Pro Asn Ser Lys Gln Ser Gln Asp Gln Pro Leu Arg
 1 5 10

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<400> 24

Lys Met Asp Glu Thr Asp Ala Ser Ser Ala Val Lys
 1 5 10

<210> 25
 <211> 12
 <212> PRT
 <213> Homo sapiens

<400> 25

Thr Ser Asp Leu Ile Val Leu Gly Leu Pro Trp Lys
 1 5 10

<210> 26
 <211> 414
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 <213> Homo sapiens

<400> 26

Met Ser Glu Tyr Ile Arg Val Thr Glu Asp Glu Asn Asp Glu Pro Ile
 1 5 10 15

Glu Ile Pro Ser Glu Asp Asp Gly Thr Val Leu Leu Ser Thr Val Thr
 20 25 30

Ala Gln Phe Pro Gly Ala Cys Gly Leu Arg Tyr Arg Asn Pro Val Ser
 35 40 45

Gln Cys Met Arg Gly Val Arg Leu Val Glu Gly Ile Leu His Ala Pro
 50 55 60

Asp Ala Gly Trp Gly Asn Leu Val Tyr Val Val Asn Tyr Pro Lys Asp

65					70						75				80
Asn	Lys	Arg	Lys	Met	Asp	Glu	Thr	Asp	Ala	Ser	Ser	Ala	Val	Lys	Val
				85					90					95	
Lys	Arg	Ala	Val	Gln	Lys	Thr	Ser	Asp	Leu	Ile	Val	Leu	Gly	Leu	Pro
			100					105					110		
Trp	Lys	Thr	Thr	Glu	Gln	Asp	Leu	Lys	Glu	Tyr	Phe	Ser	Thr	Phe	Gly
		115					120					125			
Glu	Val	Leu	Met	Val	Gln	Val	Lys	Lys	Asp	Leu	Lys	Thr	Gly	His	Ser
	130					135					140				
Lys	Gly	Phe	Gly	Phe	Val	Arg	Phe	Thr	Glu	Tyr	Glu	Thr	Gln	Val	Lys
145					150					155					160
Val	Met	Ser	Gln	Arg	His	Met	Ile	Asp	Gly	Arg	Trp	Cys	Asp	Cys	Lys
				165					170					175	
Leu	Pro	Asn	Ser	Lys	Gln	Ser	Gln	Asp	Glu	Pro	Leu	Arg	Ser	Arg	Lys
			180					185					190		
Val	Phe	Val	Gly	Arg	Cys	Thr	Glu	Asp	Met	Thr	Glu	Asp	Glu	Leu	Arg
		195					200					205			
Glu	Phe	Phe	Ser	Gln	Tyr	Gly	Asp	Val	Met	Asp	Val	Phe	Ile	Pro	Lys
	210					215					220				
Pro	Phe	Arg	Ala	Phe	Ala	Phe	Val	Thr	Phe	Ala	Asp	Asp	Gln	Ile	Ala
225					230					235					240
Gln	Ser	Leu	Cys	Gly	Glu	Asp	Leu	Ile	Ile	Lys	Gly	Ile	Ser	Val	His
				245					250					255	
Ile	Ser	Asn	Ala	Glu	Pro	Lys	His	Asn	Ser	Asn	Arg	Gln	Leu	Glu	Arg
			260					265					270		
Ser	Gly	Arg	Phe	Gly	Gly	Asn	Pro	Gly	Gly	Phe	Gly	Asn	Gln	Gly	Gly
		275					280					285			
Phe	Gly	Asn	Ser	Arg	Gly	Gly	Gly	Ala	Gly	Leu	Gly	Asn	Asn	Gln	Gly
	290					295					300				

Ser Asn Met Gly Gly Gly Met Asn Phe Gly Ala Phe Ser Ile Asn Pro
305 310 315 320

Ala Met Met Ala Ala Ala Gln Ala Ala Leu Gln Ser Ser Trp Gly Met
325 330 335

Met Gly Met Leu Ala Ser Gln Gln Asn Gln Ser Gly Pro Ser Gly Asn
340 345 350

Asn Gln Asn Gln Gly Asn Met Gln Arg Glu Pro Asn Gln Ala Phe Gly
355 360 365

Ser Gly Asn Asn Ser Tyr Ser Gly Ser Asn Ser Gly Ala Ala Ile Gly
370 375 380

Trp Gly Ser Ala Ser Asn Ala Gly Ser Gly Ser Gly Phe Asn Gly Gly
385 390 395 400

Phe Gly Ser Ser Met Asp Ser Lys Ser Ser Gly Trp Gly Met
405 410

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<400> 27

Asn Tyr Tyr Arg
1

<210> 28
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<213> Homo sapiens

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Asn Tyr Tyr Arg
1

<210> 29
<211> 6
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<213> Homo sapiens

<400> 29

Val Gln Glu Ala Gln Lys
1 5

<210> 30

<211> 7

<212> PRT

<213> Homo sapiens

<400> 30

Glu Val Ala Asp Cys Phe Lys
1 5

<210> 31

<211> 22

<212> PRT

<213> Homo sapiens

<400> 31

His Asp Gly Thr Gly Gly Gln Ser Ile Tyr Gly Asp Lys Phe Glu Asp
1 5 10 15

Glu Asn Phe Asp Val Leu
20

<210> 32

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<212> PRT

<213> Homo sapiens

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<221> misc_feature

<222> (7)..(7)

<223> wherein Xaa is an unidentified amino acid

<400> 32

Ile Thr Met Glu Leu Phe Xaa Asn Ile Val Pro Arg
1 5 10

<210> 33

<211> 26

<212> PRT

<213> Homo sapiens

<220>

<221> misc_feature

<222> (19)..(24)

<223> wherein each Xaa is an unidentified amino acid

<400> 33

His Thr Gly Pro Gly Leu Leu Ser Met Ala Asn Gln Gly Gln Asn Thr
1 5 10 15

Asn Asn Xaa Xaa Phe Val Ile Xaa Leu Lys
20 25

<210> 34

<211> 3224

<212> PRT

<213> Homo sapiens

<400> 34

Met Arg Arg Ser Lys Ala Asp Val Glu Arg Tyr Ile Ala Ser Val Gln
1 5 10 15

Gly Ser Thr Pro Ser Pro Arg Gln Lys Ser Met Lys Gly Phe Tyr Phe
20 25 30

Ala Lys Leu Tyr Tyr Glu Ala Lys Glu Tyr Asp Leu Ala Lys Lys Tyr
35 40 45

Ile Cys Thr Tyr Ile Asn Val Gln Glu Arg Asp Pro Lys Ala His Arg
50 55 60

Phe Leu Gly Leu Leu Tyr Glu Leu Glu Glu Asn Thr Asp Lys Ala Val
65 70 75 80

Glu Cys Tyr Arg Arg Ser Val Glu Leu Asn Pro Thr Gln Lys Asp Leu
85 90 95

Val Leu Lys Ile Ala Glu Leu Leu Cys Lys Asn Asp Val Thr Asp Gly
100 105 110

Arg Ala Lys Tyr Trp Leu Glu Arg Ala Ala Lys Leu Phe Pro Gly Ser
115 120 125

Pro Ala Ile Tyr Lys Leu Lys Glu Gln Leu Leu Asp Cys Glu Gly Glu
130 135 140

Asp Gly Trp Asn Lys Leu Phe Asp Leu Ile Gln Ser Glu Leu Tyr Val

145		150		155		160
Arg Pro Asp Asp Val His Val Asn Ile Arg Leu Val Glu Val Tyr Arg						
	165			170		175
Ser Thr Lys Arg Leu Lys Asp Ala Val Ala His Cys His Glu Ala Glu						
	180		185			190
Arg Asn Ile Ala Leu Arg Ser Ser Leu Glu Trp Asn Ser Cys Val Val						
	195		200		205	
Gln Thr Leu Lys Glu Tyr Leu Glu Ser Leu Gln Cys Leu Glu Ser Asp						
	210		215		220	
Lys Ser Asp Trp Arg Ala Thr Asn Thr Asp Leu Leu Leu Ala Tyr Ala						
	225		230		235	240
Asn Leu Met Leu Leu Thr Leu Ser Thr Arg Asp Val Gln Glu Ser Arg						
	245		250			255
Glu Leu Leu Gln Ser Phe Asp Ser Ala Leu Gln Ser Val Lys Ser Leu						
	260		265			270
Gly Gly Asn Asp Glu Leu Ser Ala Thr Phe Leu Glu Met Lys Gly His						
	275		280		285	
Phe Tyr Met His Ala Gly Ser Leu Leu Leu Lys Met Gly Gln His Ser						
	290		295		300	
Ser Asn Val Gln Trp Arg Ala Leu Ser Glu Leu Ala Ala Leu Cys Tyr						
	305		310		315	320
Leu Ile Ala Phe Gln Val Pro Arg Pro Lys Ile Lys Leu Ile Lys Gly						
	325		330			335
Glu Ala Gly Gln Asn Leu Leu Glu Met Met Ala Cys Asp Arg Leu Ser						
	340		345			350
Gln Ser Gly His Met Leu Leu Asn Leu Ser Arg Gly Lys Gln Asp Phe						
	355		360		365	
Leu Lys Glu Ile Val Glu Thr Phe Ala Asn Lys Ser Gly Gln Ser Ala						
	370		375		380	

Leu Tyr Asp Ala Leu Phe Ser Ser Gln Ser Pro Lys Asp Thr Ser Phe
 385 390 395 400

Leu Gly Ser Asp Asp Ile Gly Asn Ile Asp Val Arg Glu Pro Glu Leu
 405 410 415

Glu Asp Leu Thr Arg Tyr Asp Val Gly Ala Ile Arg Ala His Asn Gly
 420 425 430

Ser Leu Gln His Leu Thr Trp Leu Gly Leu Gln Trp Asn Ser Leu Pro
 435 440 445

Ala Leu Pro Gly Ile Arg Lys Trp Leu Lys Gln Leu Phe His His Leu
 450 455 460

Pro His Glu Thr Ser Arg Leu Glu Thr Asn Ala Pro Glu Ser Ile Cys
 465 470 475 480

Ile Leu Asp Leu Glu Val Phe Leu Leu Gly Val Val Tyr Thr Ser His
 485 490 495

Leu Gln Leu Lys Glu Lys Cys Asn Ser His His Ser Ser Tyr Gln Pro
 500 505 510

Leu Cys Leu Pro Leu Pro Val Cys Lys Gln Leu Cys Thr Glu Arg Gln
 515 520 525

Lys Ser Trp Trp Asp Ala Val Cys Thr Leu Ile His Arg Lys Ala Val
 530 535 540

Pro Gly Asn Val Ala Lys Leu Arg Leu Leu Val Gln His Glu Ile Asn
 545 550 555 560

Thr Leu Arg Ala Gln Glu Lys His Gly Leu Gln Pro Ala Leu Leu Val
 565 570 575

His Trp Ala Glu Cys Leu Gln Lys Thr Gly Ser Gly Leu Asn Ser Phe
 580 585 590

Tyr Asp Gln Arg Glu Tyr Ile Gly Arg Ser Val His Tyr Trp Lys Lys
 595 600 605

Val Leu Pro Leu Leu Lys Ile Ile Lys Lys Lys Asn Ser Ile Pro Glu
610 615 620

Pro Ile Asp Pro Leu Phe Lys His Phe His Ser Val Asp Ile Gln Ala
625 630 635 640

Ser Glu Ile Val Glu Tyr Glu Glu Asp Ala His Ile Thr Phe Ala Ile
645 650 655

Leu Asp Ala Val Asn Gly Asn Ile Glu Asp Ala Val Thr Ala Phe Glu
660 665 670

Ser Ile Lys Ser Val Val Ser Tyr Trp Asn Leu Ala Leu Ile Phe His
675 680 685

Arg Lys Ala Glu Asp Ile Glu Asn Asp Ala Leu Ser Pro Glu Glu Gln
690 695 700

Glu Glu Cys Lys Asn Tyr Leu Arg Lys Thr Arg Asp Tyr Leu Ile Lys
705 710 715 720

Ile Ile Asp Asp Ser Asp Ser Asn Leu Ser Val Val Lys Lys Leu Pro
725 730 735

Val Pro Leu Glu Ser Val Lys Glu Met Leu Asn Ser Val Met Gln Glu
740 745 750

Leu Glu Asp Tyr Ser Glu Gly Gly Pro Leu Tyr Lys Asn Gly Ser Leu
755 760 765

Arg Asn Ala Asp Ser Glu Ile Lys Arg Ser Thr Pro Ser Pro Thr Arg
770 775 780

Tyr Ser Leu Ser Pro Ser Lys Ser Tyr Lys Tyr Ser Pro Lys Thr Pro
785 790 795 800

Pro Arg Trp Ala Glu Asp Gln Asn Ser Leu Leu Lys Met Ile Cys Gln
805 810 815

Gln Val Glu Ala Ile Lys Lys Glu Met Gln Glu Leu Lys Leu Asn Ser
820 825 830

Ser Asn Ser Ala Ser Pro His Arg Trp Pro Thr Glu Asn Tyr Gly Pro
835 840 845

Asp Ser Val Pro Asp Gly Tyr Gln Gly Ser Gln Thr Phe His Gly Ala
850 855 860

Pro Leu Thr Val Ala Thr Thr Gly Pro Ser Val Tyr Tyr Ser Gln Ser
865 870 875 880

Pro Ala Tyr Asn Ser Gln Tyr Leu Leu Arg Pro Ala Ala Asn Val Thr
885 890 895

Pro Thr Lys Gly Pro Val Tyr Gly Met Asn Arg Leu Pro Pro Gln Gln
900 905 910

His Ile Tyr Ala Tyr Pro Gln Gln Met His Thr Pro Pro Val Gln Ser
915 920 925

Ser Ser Ala Cys Met Phe Ser Gln Glu Met Tyr Gly Pro Pro Ala Leu
930 935 940

Arg Phe Glu Ser Pro Ala Thr Gly Ile Leu Ser Pro Arg Gly Asp Asp
945 950 955 960

Tyr Phe Asn Tyr Asn Val Gln Gln Thr Ser Thr Asn Pro Pro Leu Pro
965 970 975

Glu Pro Gly Tyr Phe Thr Lys Pro Pro Ile Ala Ala His Ala Ser Arg
980 985 990

Ser Ala Glu Ser Lys Thr Ile Glu Phe Gly Lys Thr Asn Phe Val Gln
995 1000 1005

Pro Met Pro Gly Glu Gly Leu Arg Pro Ser Leu Pro Thr Gln Ala
1010 1015 1020

His Thr Thr Gln Pro Thr Pro Phe Lys Phe Asn Ser Asn Phe Lys
1025 1030 1035

Ser Asn Asp Gly Asp Phe Thr Phe Ser Ser Pro Gln Val Val Thr
1040 1045 1050

Gln Pro Pro Pro Ala Ala Tyr Ser Asn Ser Glu Ser Leu Leu Gly

1055		1060		1065
Leu Leu Thr Ser Asp Lys Pro	Leu Gln Gly Asp Gly Tyr Ser Gly			
1070	1075	1080		
Ala Lys Pro Ile Pro Gly Gly	Gln Thr Ile Gly Pro Arg Asn Thr			
1085	1090	1095		
Phe Asn Phe Gly Ser Lys Asn	Val Ser Gly Ile Ser Phe Thr Glu			
1100	1105	1110		
Asn Met Gly Ser Ser Gln Gln	Lys Asn Ser Gly Phe Arg Arg Ser			
1115	1120	1125		
Asp Asp Met Phe Thr Phe His	Gly Pro Gly Lys Ser Val Phe Gly			
1130	1135	1140		
Thr Pro Thr Leu Glu Thr Ala	Asn Lys Asn His Glu Thr Asp Gly			
1145	1150	1155		
Gly Ser Ala His Gly Asp Asp	Asp Asp Asp Gly Pro His Phe Glu			
1160	1165	1170		
Pro Val Val Pro Leu Pro Asp	Lys Ile Glu Val Lys Thr Gly Glu			
1175	1180	1185		
Glu Asp Glu Glu Glu Phe Phe	Cys Asn Arg Ala Lys Leu Phe Arg			
1190	1195	1200		
Phe Asp Val Glu Ser Lys Glu	Trp Lys Glu Arg Gly Ile Gly Asn			
1205	1210	1215		
Val Lys Ile Leu Arg His Lys	Thr Ser Gly Lys Ile Arg Leu Leu			
1220	1225	1230		
Met Arg Arg Glu Gln Val Leu	Lys Ile Cys Ala Asn His Tyr Ile			
1235	1240	1245		
Ser Pro Asp Met Lys Leu Thr	Pro Asn Ala Gly Ser Asp Arg Ser			
1250	1255	1260		
Phe Val Trp His Ala Leu Asp	Tyr Ala Asp Glu Leu Pro Lys Pro			
1265	1270	1275		

Glu	Gln	Leu	Ala	Ile	Arg	Phe	Lys	Thr	Pro	Glu	Glu	Ala	Ala	Leu
1280						1285					1290			
Phe	Lys	Cys	Lys	Phe	Glu	Glu	Ala	Gln	Ser	Ile	Leu	Lys	Ala	Pro
1295						1300					1305			
Gly	Thr	Asn	Val	Ala	Met	Ala	Ser	Asn	Gln	Ala	Val	Arg	Ile	Val
1310						1315					1320			
Lys	Glu	Pro	Thr	Ser	His	Asp	Asn	Lys	Asp	Ile	Cys	Lys	Ser	Asp
1325						1330					1335			
Ala	Gly	Asn	Leu	Asn	Phe	Glu	Phe	Gln	Val	Ala	Lys	Lys	Glu	Gly
1340						1345					1350			
Ser	Trp	Trp	His	Cys	Asn	Ser	Cys	Ser	Leu	Lys	Asn	Ala	Ser	Thr
1355						1360					1365			
Ala	Lys	Lys	Cys	Val	Ser	Cys	Gln	Asn	Leu	Asn	Pro	Ser	Asn	Lys
1370						1375					1380			
Glu	Leu	Val	Gly	Pro	Pro	Leu	Ala	Glu	Thr	Val	Phe	Thr	Pro	Lys
1385						1390					1395			
Thr	Ser	Pro	Glu	Asn	Val	Gln	Asp	Arg	Phe	Ala	Leu	Val	Thr	Pro
1400						1405					1410			
Lys	Lys	Glu	Gly	His	Trp	Asp	Cys	Ser	Ile	Cys	Leu	Val	Arg	Asn
1415						1420					1425			
Glu	Pro	Thr	Val	Ser	Arg	Cys	Ile	Ala	Cys	Gln	Asn	Thr	Lys	Ser
1430						1435					1440			
Ala	Asn	Lys	Ser	Gly	Ser	Ser	Phe	Val	His	Gln	Ala	Ser	Phe	Lys
1445						1450					1455			
Phe	Gly	Gln	Gly	Asp	Leu	Pro	Lys	Pro	Ile	Asn	Ser	Asp	Phe	Arg
1460						1465					1470			
Ser	Val	Phe	Ser	Thr	Lys	Glu	Gly	Gln	Trp	Asp	Cys	Ser	Ala	Cys
1475						1480					1485			

Leu	Val	Gln	Asn	Glu	Gly	Ser	Ser	Thr	Lys	Cys	Ala	Ala	Cys	Gln
1490						1495					1500			
Asn	Pro	Arg	Lys	Gln	Ser	Leu	Pro	Ala	Thr	Ser	Ile	Pro	Thr	Pro
1505						1510					1515			
Ala	Ser	Phe	Lys	Phe	Gly	Thr	Ser	Glu	Thr	Ser	Lys	Thr	Leu	Lys
1520						1525					1530			
Ser	Gly	Phe	Glu	Asp	Met	Phe	Ala	Lys	Lys	Glu	Gly	Gln	Trp	Asp
1535						1540					1545			
Cys	Ser	Ser	Cys	Leu	Val	Arg	Asn	Glu	Ala	Asn	Ala	Thr	Arg	Cys
1550						1555					1560			
Val	Ala	Cys	Gln	Asn	Pro	Asp	Lys	Pro	Ser	Pro	Ser	Thr	Ser	Val
1565						1570					1575			
Pro	Ala	Pro	Ala	Ser	Phe	Lys	Phe	Gly	Thr	Ser	Glu	Thr	Ser	Lys
1580						1585					1590			
Ala	Pro	Lys	Ser	Gly	Phe	Glu	Gly	Met	Phe	Thr	Lys	Lys	Glu	Gly
1595						1600					1605			
Gln	Trp	Asp	Cys	Ser	Val	Cys	Leu	Val	Arg	Asn	Glu	Ala	Ser	Ala
1610						1615					1620			
Thr	Lys	Cys	Ile	Ala	Cys	Gln	Asn	Pro	Gly	Lys	Gln	Asn	Gln	Thr
1625						1630					1635			
Thr	Ser	Ala	Val	Ser	Thr	Pro	Ala	Ser	Ser	Glu	Thr	Ser	Lys	Ala
1640						1645					1650			
Pro	Lys	Ser	Gly	Phe	Glu	Gly	Met	Phe	Thr	Lys	Lys	Glu	Gly	Gln
1655						1660					1665			
Trp	Asp	Cys	Ser	Val	Cys	Leu	Val	Arg	Asn	Glu	Ala	Ser	Ala	Thr
1670						1675					1680			
Lys	Cys	Ile	Ala	Cys	Gln	Asn	Pro	Gly	Lys	Gln	Asn	Gln	Thr	Thr
1685						1690					1695			

Ser	Ala	Val	Ser	Thr	Pro	Ala	Ser	Ser	Glu	Thr	Ser	Lys	Ala	Pro
1700						1705					1710			
Lys	Ser	Gly	Phe	Glu	Gly	Met	Phe	Thr	Lys	Lys	Glu	Gly	Gln	Trp
1715						1720					1725			
Asp	Cys	Ser	Val	Cys	Leu	Val	Arg	Asn	Glu	Ala	Ser	Ala	Thr	Lys
1730						1735					1740			
Cys	Ile	Ala	Cys	Gln	Cys	Pro	Ser	Lys	Gln	Asn	Gln	Thr	Thr	Ala
1745						1750					1755			
Ile	Ser	Thr	Pro	Ala	Ser	Ser	Glu	Ile	Ser	Lys	Ala	Pro	Lys	Ser
1760						1765					1770			
Gly	Phe	Glu	Gly	Met	Phe	Ile	Arg	Lys	Gly	Gln	Trp	Asp	Cys	Ser
1775						1780					1785			
Val	Cys	Cys	Val	Gln	Asn	Glu	Ser	Ser	Ser	Leu	Lys	Cys	Val	Ala
1790						1795					1800			
Cys	Asp	Ala	Ser	Lys	Pro	Thr	His	Lys	Pro	Ile	Ala	Glu	Ala	Pro
1805						1810					1815			
Ser	Ala	Phe	Thr	Leu	Gly	Ser	Glu	Met	Lys	Leu	His	Asp	Ser	Ser
1820						1825					1830			
Gly	Ser	Gln	Val	Gly	Thr	Gly	Phe	Lys	Ser	Asn	Phe	Ser	Glu	Lys
1835						1840					1845			
Ala	Ser	Lys	Phe	Gly	Asn	Thr	Glu	Gln	Gly	Phe	Lys	Phe	Gly	His
1850						1855					1860			
Val	Asp	Gln	Glu	Asn	Ser	Pro	Ser	Phe	Met	Phe	Gln	Gly	Ser	Ser
1865						1870					1875			
Asn	Thr	Glu	Phe	Lys	Ser	Thr	Lys	Glu	Gly	Phe	Ser	Ile	Pro	Val
1880						1885					1890			
Ser	Ala	Asp	Gly	Phe	Lys	Phe	Gly	Ile	Ser	Glu	Pro	Gly	Asn	Gln
1895						1900					1905			
Glu	Lys	Lys	Ser	Glu	Lys	Pro	Leu	Glu	Asn	Gly	Thr	Gly	Phe	Gln

1910	1915	1920
Ala Gln Asp Ile Ser Gly Gln Lys Asn Gly Arg Gly Val Ile Phe 1925 1930 1935		
Gly Gln Thr Ser Ser Thr Phe Thr Phe Ala Asp Leu Ala Lys Ser 1940 1945 1950		
Thr Ser Gly Glu Gly Phe Gln Phe Gly Lys Lys Asp Pro Asn Phe 1955 1960 1965		
Lys Gly Phe Ser Gly Ala Gly Glu Lys Leu Phe Ser Ser Gln Tyr 1970 1975 1980		
Gly Lys Met Ala Asn Lys Ala Asn Thr Ser Gly Asp Phe Glu Lys 1985 1990 1995		
Asp Asp Asp Ala Tyr Lys Thr Glu Asp Ser Asp Asp Ile His Phe 2000 2005 2010		
Glu Pro Val Val Gln Met Pro Glu Lys Val Glu Leu Val Thr Gly 2015 2020 2025		
Glu Glu Asp Glu Lys Val Leu Tyr Ser Gln Arg Val Lys Leu Phe 2030 2035 2040		
Arg Phe Asp Ala Glu Val Ser Gln Trp Lys Glu Arg Gly Leu Gly 2045 2050 2055		
Asn Leu Lys Ile Leu Lys Asn Glu Val Asn Gly Lys Leu Arg Met 2060 2065 2070		
Leu Met Arg Arg Glu Gln Val Leu Lys Val Cys Ala Asn His Trp 2075 2080 2085		
Ile Thr Thr Thr Met Asn Leu Lys Pro Leu Ser Gly Ser Asp Arg 2090 2095 2100		
Ala Trp Met Trp Leu Ala Ser Asp Phe Ser Asp Gly Asp Ala Lys 2105 2110 2115		
Leu Glu Gln Leu Ala Ala Lys Phe Lys Thr Pro Glu Leu Ala Glu 2120 2125 2130		

Glu Phe Lys Gln Lys Phe Glu Glu Cys Gln Arg Leu Leu Leu Asp	2135	2140	2145
Ile Pro Leu Gln Thr Pro His Lys Leu Val Asp Thr Gly Arg Ala	2150	2155	2160
Ala Lys Leu Ile Gln Arg Ala Glu Glu Met Lys Ser Gly Leu Lys	2165	2170	2175
Asp Phe Lys Thr Phe Leu Thr Asn Asp Gln Thr Lys Val Thr Glu	2180	2185	2190
Glu Glu Asn Lys Gly Ser Gly Thr Gly Ala Ala Gly Ala Ser Asp	2195	2200	2205
Thr Thr Ile Lys Pro Asn Pro Glu Asn Thr Gly Pro Thr Leu Glu	2210	2215	2220
Trp Asp Asn Tyr Asp Leu Arg Glu Asp Ala Leu Asp Asp Ser Val	2225	2230	2235
Ser Ser Ser Ser Val His Ala Ser Pro Leu Ala Ser Ser Pro Val	2240	2245	2250
Arg Lys Asn Leu Phe Arg Phe Gly Glu Ser Thr Thr Gly Phe Asn	2255	2260	2265
Phe Ser Phe Lys Ser Ala Leu Ser Pro Ser Lys Ser Pro Ala Lys	2270	2275	2280
Leu Asn Gln Ser Gly Thr Ser Val Gly Thr Asp Glu Glu Ser Asp	2285	2290	2295
Val Thr Gln Glu Glu Glu Arg Asp Gly Gln Tyr Phe Glu Pro Val	2300	2305	2310
Val Pro Leu Pro Asp Leu Val Glu Val Ser Ser Gly Glu Glu Asn	2315	2320	2325
Glu Gln Val Val Phe Ser His Arg Ala Lys Leu Tyr Arg Tyr Asp	2330	2335	2340

Lys Asp Val Gly Gln Trp Lys Glu Arg Gly Ile Gly Asp Ile Lys
 2345 2350 2355

Ile Leu Gln Asn Tyr Asp Asn Lys Gln Val Arg Ile Val Met Arg
 2360 2365 2370

Arg Asp Gln Val Leu Lys Leu Cys Ala Asn His Arg Ile Thr Pro
 2375 2380 2385

Asp Met Thr Leu Gln Asn Met Lys Gly Thr Glu Arg Val Trp Leu
 2390 2395 2400

Trp Thr Ala Cys Asp Phe Ala Asp Gly Glu Arg Lys Val Glu His
 2405 2410 2415

Leu Ala Val Arg Phe Lys Leu Gln Asp Val Ala Asp Ser Phe Lys
 2420 2425 2430

Lys Ile Phe Asp Glu Ala Lys Thr Ala Gln Glu Lys Asp Ser Leu
 2435 2440 2445

Ile Thr Pro His Val Ser Arg Ser Ser Thr Pro Arg Glu Ser Pro
 2450 2455 2460

Cys Gly Lys Ile Ala Val Ala Val Leu Glu Glu Thr Thr Arg Glu
 2465 2470 2475

Arg Thr Asp Val Ile Gln Gly Asp Asp Val Ala Asp Ala Thr Ser
 2480 2485 2490

Glu Val Glu Val Ser Ser Thr Ser Glu Thr Thr Pro Lys Ala Val
 2495 2500 2505

Val Ser Pro Pro Lys Phe Val Phe Gly Ser Glu Ser Val Lys Ser
 2510 2515 2520

Ile Phe Ser Ser Glu Lys Ser Lys Pro Phe Ala Phe Gly Asn Ser
 2525 2530 2535

Ser Ala Thr Gly Ser Leu Phe Gly Phe Ser Phe Asn Ala Pro Leu
 2540 2545 2550

Lys	Ser	Asn	Asn	Ser	Glu	Thr	Ser	Ser	Val	Ala	Gln	Ser	Gly	Ser
2555						2560					2565			
Glu	Ser	Lys	Val	Glu	Pro	Lys	Lys	Cys	Glu	Leu	Ser	Lys	Asn	Ser
2570						2575					2580			
Asp	Ile	Glu	Gln	Ser	Ser	Asp	Ser	Lys	Val	Lys	Asn	Leu	Phe	Ala
2585						2590					2595			
Ser	Phe	Pro	Thr	Glu	Glu	Ser	Ser	Ile	Asn	Tyr	Thr	Phe	Lys	Thr
2600						2605					2610			
Pro	Glu	Lys	Ala	Lys	Glu	Lys	Lys	Lys	Pro	Glu	Asp	Ser	Pro	Ser
2615						2620					2625			
Asp	Asp	Asp	Val	Leu	Ile	Val	Tyr	Glu	Leu	Thr	Pro	Thr	Ala	Glu
2630						2635					2640			
Gln	Lys	Ala	Leu	Ala	Thr	Lys	Leu	Lys	Leu	Pro	Pro	Thr	Phe	Phe
2645						2650					2655			
Cys	Tyr	Lys	Asn	Arg	Pro	Asp	Tyr	Val	Ser	Glu	Glu	Glu	Glu	Asp
2660						2665					2670			
Asp	Glu	Asp	Phe	Glu	Thr	Ala	Val	Lys	Lys	Leu	Asn	Gly	Lys	Leu
2675						2680					2685			
Tyr	Leu	Asp	Gly	Ser	Glu	Lys	Cys	Arg	Pro	Leu	Glu	Glu	Asn	Thr
2690						2695					2700			
Ala	Asp	Asn	Glu	Lys	Glu	Cys	Ile	Ile	Val	Trp	Glu	Lys	Lys	Pro
2705						2710					2715			
Thr	Val	Glu	Glu	Lys	Ala	Lys	Ala	Asp	Thr	Leu	Lys	Leu	Pro	Pro
2720						2725					2730			
Thr	Phe	Phe	Cys	Gly	Val	Cys	Ser	Asp	Thr	Asp	Glu	Asp	Asn	Gly
2735						2740					2745			
Asn	Gly	Glu	Asp	Phe	Gln	Ser	Glu	Leu	Gln	Lys	Val	Gln	Glu	Ala
2750						2755					2760			
Gln	Lys	Ser	Gln	Thr	Glu	Glu	Ile	Thr	Ser	Thr	Thr	Asp	Ser	Val

2765		2770		2775
Tyr Thr Gly Gly Thr Glu Val Met Val Pro Ser Phe Cys Lys Ser				
2780		2785		2790
Glu Glu Pro Asp Ser Ile Thr Lys Ser Ile Ser Ser Pro Ser Val				
2795		2800		2805
Ser Ser Glu Thr Met Asp Lys Pro Val Asp Leu Ser Thr Arg Lys				
2810		2815		2820
Glu Ile Asp Thr Asp Ser Thr Ser Gln Gly Glu Ser Lys Ile Val				
2825		2830		2835
Ser Phe Gly Phe Gly Ser Ser Thr Gly Leu Ser Phe Ala Asp Leu				
2840		2845		2850
Ala Ser Ser Asn Ser Gly Asp Phe Ala Phe Gly Ser Lys Asp Lys				
2855		2860		2865
Asn Phe Gln Trp Ala Asn Thr Gly Ala Ala Val Phe Gly Thr Gln				
2870		2875		2880
Ser Val Gly Thr Gln Ser Ala Gly Lys Val Gly Glu Asp Glu Asp				
2885		2890		2895
Gly Ser Asp Glu Glu Val Val His Asn Glu Asp Ile His Phe Glu				
2900		2905		2910
Pro Ile Val Ser Leu Pro Glu Val Glu Val Lys Ser Gly Glu Glu				
2915		2920		2925
Asp Glu Glu Ile Leu Phe Lys Glu Arg Ala Lys Leu Tyr Arg Trp				
2930		2935		2940
Asp Arg Asp Val Ser Gln Trp Lys Glu Arg Gly Val Gly Asp Ile				
2945		2950		2955
Lys Ile Leu Trp His Thr Met Lys Asn Tyr Tyr Arg Ile Leu Met				
2960		2965		2970
Arg Arg Asp Gln Val Phe Lys Val Cys Ala Asn His Val Ile Thr				
2975		2980		2985

Lys	Thr	Met	Glu	Leu	Lys	Pro	Leu	Asn	Val	Ser	Asn	Asn	Ala	Leu
2990						2995					3000			
Val	Trp	Thr	Ala	Ser	Asp	Tyr	Ala	Asp	Gly	Glu	Ala	Lys	Val	Glu
3005						3010					3015			
Gln	Leu	Ala	Val	Arg	Phe	Lys	Thr	Lys	Glu	Val	Ala	Asp	Cys	Phe
3020						3025					3030			
Lys	Lys	Thr	Phe	Glu	Glu	Cys	Gln	Gln	Asn	Leu	Met	Lys	Leu	Gln
3035						3040					3045			
Lys	Gly	His	Val	Ser	Leu	Ala	Ala	Glu	Leu	Ser	Lys	Glu	Thr	Asn
3050						3055					3060			
Pro	Val	Val	Phe	Phe	Asp	Val	Cys	Ala	Asp	Gly	Glu	Pro	Leu	Gly
3065						3070					3075			
Arg	Ile	Thr	Met	Glu	Leu	Phe	Ser	Asn	Ile	Val	Pro	Arg	Thr	Ala
3080						3085					3090			
Glu	Asn	Phe	Arg	Ala	Leu	Cys	Thr	Gly	Glu	Lys	Gly	Phe	Gly	Phe
3095						3100					3105			
Lys	Asn	Ser	Ile	Phe	His	Arg	Val	Ile	Pro	Asp	Phe	Val	Cys	Gln
3110						3115					3120			
Gly	Gly	Asp	Ile	Thr	Lys	His	Asp	Gly	Thr	Gly	Gly	Gln	Ser	Ile
3125						3130					3135			
Tyr	Gly	Asp	Lys	Phe	Glu	Asp	Glu	Asn	Phe	Asp	Val	Lys	His	Thr
3140						3145					3150			
Gly	Pro	Gly	Leu	Leu	Ser	Met	Ala	Asn	Gln	Gly	Gln	Asn	Thr	Asn
3155						3160					3165			
Asn	Ser	Gln	Phe	Val	Ile	Thr	Leu	Lys	Lys	Ala	Glu	His	Leu	Asp
3170						3175					3180			
Phe	Lys	His	Val	Val	Phe	Gly	Phe	Val	Lys	Asp	Gly	Met	Asp	Thr
3185						3190					3195			

Val Lys Lys Ile Glu Ser Phe Gly Ser Pro Lys Gly Ser Val Cys
3200 3205 3210

Arg Arg Ile Thr Ile Thr Glu Cys Gly Gln Ile
3215 3220

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<211> 5
<212> PRT
<213> Homo sapiens

<400> 35

Glu Phe Glu Ser Arg
1 5

<210> 36
<211> 5
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<400> 36

Thr Tyr Ser Ala Lys
1 5

<210> 37
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<400> 37

Leu Asp Asn Ala Arg
1 5

<210> 38
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<213> Homo sapiens

<400> 38

Thr Tyr Ser Ala Lys
1 5

<210> 39
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<212> PRT
<213> Homo sapiens

<400> 39

Asn Ile Tyr Ser Glu Glu Leu Arg
1 5

<210> 40

<211> 7

<212> PRT

<213> Homo sapiens

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Thr Ala Leu Ser Glu Lys Arg
1 5

<210> 41

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<213> Homo sapiens

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1 5 10

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1 5 10 15

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 1 5 10 15

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 <213> Homo sapiens

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 1 5 10 15

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Thr Ala Leu Ser Glu Lys Arg Thr Leu Glu Gly Glu Leu His Asp Leu
 1 5 10 15

Arg Gly Gln Val Ala Lys Leu Glu Ala Ala Leu Gly Glu Ala Lys Lys
 20 25 30

Gln Leu Gln Asp Glu Met Leu Arg Arg Val Asp Ala Glu Asn Arg Leu
 35 40 45

Gln Thr Met Lys Glu Glu Leu Asp Phe Gln Lys Asn Ile Tyr Ser Glu
 50 55 60

Glu Leu Arg Glu Thr Lys Arg Arg His Glu Thr Arg Leu Val Glu Ile
 65 70 75 80

Asp Asn Gly Lys Gln Arg Glu Phe Glu Ser Arg Leu Ala Asp Ala Leu
 85 90 95

Gln Glu Leu Arg Ala Gln His Glu Asp Gln Val Glu Gln Tyr Lys Lys
 100 105 110

Glu Leu Glu Lys Thr Tyr Ser Ala Lys Leu Asp Asn Ala Arg Gln Ser
 115 120 125

Ala Glu Arg Asn Ser Asn Leu Val Gly Ala Ala His Glu Glu Leu Gln
 130 135 140

Gln Ser Arg Ile Arg Ile Asp Ser Leu Ser Ala Gln Leu Ser Gln Leu
 145 150 155 160

Gln Lys Gln Leu Ala Ala Lys Glu Ala Lys Leu Arg Asp Leu Glu Asp
 165 170 175

Ser Leu Ala Arg Glu Arg Asp Thr Ser Arg Arg Leu Leu Ala Glu Lys
 180 185 190

Glu Arg Glu Met Ala Glu Met Arg Ala Arg Met Gln Gln Gln Leu Asp
 195 200 205

Glu Tyr Gln Glu Leu Leu Asp Ile Lys Leu Ala Leu Asp Met Glu Ile
 210 215 220

His Ala Tyr Arg Lys Leu Leu Glu Gly Glu Glu Glu Arg Leu Arg Leu
 225 230 235 240

Ser Pro Ser Pro Thr Ser Gln Arg Ser Arg Gly Arg Ala Ser Ser His
 245 250 255

Ser Ser Gln Thr Gln Gly Gly Gly Ser Val Thr Lys Lys Arg Lys Leu
 260 265 270

Glu Ser Thr Glu Ser Arg Ser Ser Phe Ser Gln His Ala Arg Thr Ser
 275 280 285

Gly Arg Val Ala Val Glu Glu Val Asp Glu Glu Gly Lys Phe Val Arg
 290 295 300

Leu Arg Asn Lys Ser Asn Glu Asp Gln Ser Met Gly Asn Trp Gln Ile
 305 310 315 320

Lys Arg Gln Asn Gly Asp Asp Pro Leu Leu Thr Tyr Arg Phe Pro Pro
 325 330 335

Lys Phe Thr Leu Lys Ala Gly Gln Val Val Thr Ile Trp Ala Ala Gly
 340 345 350

Ala Gly Ala Thr His Ser Pro Pro Thr Asp Leu Val Trp Lys Ala Gln
 355 360 365

Asn Thr Trp Gly Cys Gly Asn Ser Leu Arg Thr Ala Leu Ile Asn Ser
 370 375 380

Thr Gly Glu Glu Val Ala Met Arg Lys Leu Val Arg Ser Val Thr Val
 385 390 395 400

Val Glu Asp Asp Glu Asp Glu Asp Gly Asp Asp Leu Leu His His His
 405 410 415

His Gly Ser His Cys Ser Ser Ser Gly Asp Pro Ala Glu Tyr Asn Leu
 420 425 430

Arg Ser Arg Thr Val Leu Cys Gly Thr Cys Gly Gln Pro Ala Asp Lys
 435 440 445

Ala Ser Ala Ser Gly Ser Gly Ala Gln Val Gly Gly Pro Ile Ser Ser
 450 455 460

Gly Ser Ser Ala Ser Ser Val Thr Val Thr Arg Ser Tyr Arg Ser Val
 465 470 475 480

Gly Gly Ser Gly Gly Gly Ser Phe Gly Asp Asn Leu Val Thr Arg Ser
 485 490 495

Tyr Leu Leu Gly Asn Ser Ser Pro Arg Thr Gln Ser Pro Gln Asn Cys
 500 505 510

Ser Ile Met
 515